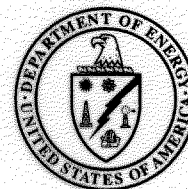


**DOE/ID-11064**  
**Revision 0**  
**Project No. 23366**  
**August 2003**



U.S. Department of Energy  
Idaho Operations Office

***Institutional Controls Status Report for the  
Power Burst Facility and Auxiliary Reactor  
Area, Operable Unit 5-12, for Fiscal Year 2003***



Idaho National Engineering and Environmental Laboratory

**Institutional Controls Status Report for the Power  
Burst Facility and Auxiliary Reactor Area,  
Operable Unit 5-12, for Fiscal Year 2003**

**August 2003**

**Prepared for the  
U.S. Department of Energy  
Idaho Operations Office**

## ABSTRACT

This institutional controls status report for the Power Burst Facility and Auxiliary Reactor Area, located within Operable Unit 5-12 at the Idaho National Engineering and Environmental Laboratory, addresses the current status of institutional control measures required by the *Record of Decision for Power Burst Facility and Auxiliary Reactor Area*. This report includes a record of recent inspections, site histories, brief profiles of contaminants, and summaries of future actions for Operable Unit 5-12. An institutional control plan has been developed for the operable unit. It defines the improvements and adjustments required to ensure the continued protection of human health and the environment at Operable Unit 5-12 sites.



## CONTENTS

ABSTRACT.....	iii
ACRONYMS.....	vii
1. INTRODUCTION.....	1-1
2. SITE HISTORY AND ENFORCEMENT ACTIVITIES.....	2-1
2.1 History of the Idaho National Engineering and Environmental Laboratory.....	2-1
2.2 History of Waste Area Group 5.....	2-1
2.3 Idaho National Engineering and Environmental Laboratory Comprehensive Facility and Land Use Plan.....	2-1
3. INSTITUTIONAL CONTROLS.....	3-1
4. WASTE AREA GROUP 5 ACTIVITIES.....	4-1
4.1 Waste Area Group 5 Record of Decision Directives.....	4-1
4.2 Status of Remedial Activities.....	4-1
4.2.1 Inactive Sites.....	4-3
5. DISPOSITION STATUS OF WASTE AREA GROUP 5 REMEDIATION WASTES.....	5-1
6. REFERENCES.....	6-1
Appendix A—Institutional Controls.....	A-1
Appendix B—Auxiliary Reactor Area and Power Burst Facility Site Maps.....	B-1
Appendix C—Field Inspection Checklists.....	C-1

## FIGURES

1-1. Location of Waste Area Group 5 at the Idaho National Engineering and Environmental Laboratory.....	1-2
2-1. Physical configuration of Waste Area Group 5.....	2-2

## TABLES

3-1. Summary of institutional control sites.....	3-1
4-1. Auxiliary Reactor Area-25 contaminant concentrations.....	4-2
5-1. Waste Area Group 5 waste summary.....	5-1



## ACRONYMS

ARA	Auxiliary Reactor Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area
COC	contaminant of concern
D&D	decontamination and dismantlement
DOE	Department of Energy
DOE-ID	Department of Energy Idaho Operations Office
IC	institutional controls
ICDF	INEEL CERCLA Disposal Facility
IDAPA	Idaho Administrative Procedures Act
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
O&M	Operation and Maintenance
OU	operable unit
PBF	Power Burst Facility
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
RWMC	Radioactive Waste Management Complex
RWP	radiological work permit
SL-1	Stationary Low-Power Reactor No. 1
SPERT	Special Power Excursion Reactor Test
SSA	Staging and Storage Annex
TSCA	Toxic Substances Control Act
WAG	waste area group
WERF	Waste Experimental Reduction Facility





# **Institutional Controls Status Report for the Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12, for Fiscal Year 2003**

## **1. INTRODUCTION**

This institutional controls status report describes the measures currently being taken to ensure the protection of human health and the environment at sites within the Power Burst Facility (PBF) and Auxiliary Reactor Area (ARA) at the Idaho National Engineering and Environmental Laboratory (INEEL). These sites were identified in the *Record of Decision for Power Burst Facility and Auxiliary Reactor Area* (DOE-ID 2000a) as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC 9601 et seq. 1980) release sites for Waste Area Group (WAG) 5. The PBF contains five separate operational facilities, and the ARA has historically comprised four separate facilities. Together, the ARA and PBF areas contain 55 individual release sites. There are 15 sites within Operable Unit (OU) 5-12 that were identified in the Record of Decision (ROD) (DOE-ID 2000a) as requiring institutional controls. Six of these 15 sites are also identified as requiring remediation in accordance with the ROD. A map of the INEEL delineating the location of WAG 5 is presented in Figure 1-1.

The need for institutional controls following remediation will be established by post-remediation confirmation sampling. The remaining 40 sites have been identified as “No Action” where institutional controls will not be required. An institutional control plan has been developed as part of the *Operations and Maintenance Plan for Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000b). The institutional control plan defined the modifications or changes needed at these sites to protect human health and the environment. The *Operations and Maintenance Plan* (DOE-ID 2000b) was provided as an attachment to *Waste Area Group 5 Remedial Design/Remedial Action Work Plan, Phase II* (DOE-ID 2000c).

The remedial action for WAG 5 has been divided into two phases. Phase I is specific to tanks and inactive waste systems located at ARA and is outlined in the *Waste Area Group 5 Remedial Design/Remedial Action Work Plan, Phase I* (DOE-ID 2001a). Phase II is concerned with the remediation of contaminated soils located at both ARA and PBF and is covered under the *Waste Area Group 5 Remedial Design/Remedial Action Work Plan, Phase II* (DOE-ID 2000c). The remediation of the ARA-25 soils was completed as part of the Phase I activities, due to the proximity of some components of one of the tank sites (ARA-16) to one of the soil sites (ARA-25). The Phase I remedial action was conducted during the 2000 and 2001 field seasons. The Phase II remedial activities will be conducted, beginning in the fall of 2003, to coincide with the opening of the INEEL CERCLA Disposal Facility (ICDF).

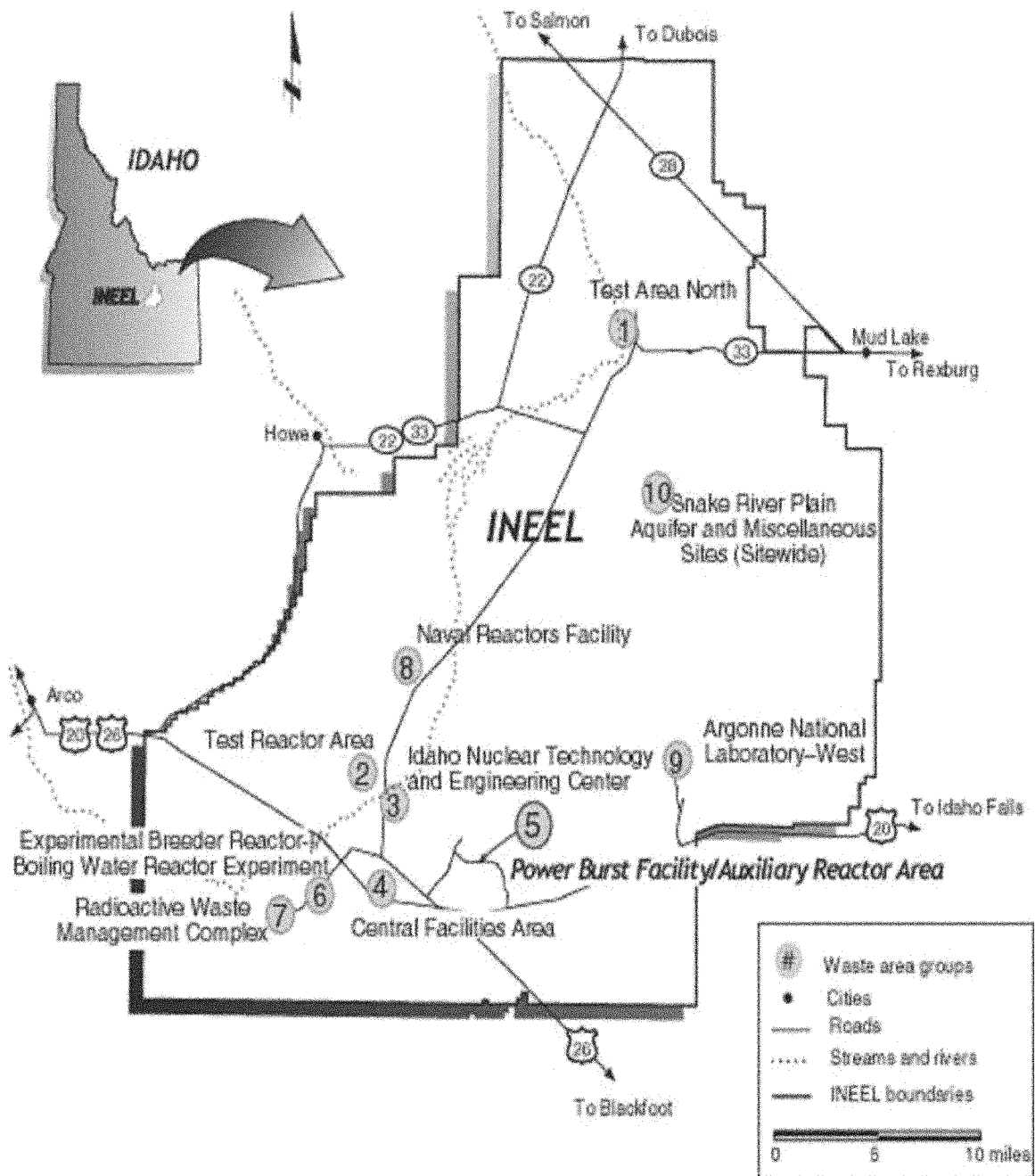


Figure 1-1. Location of Waste Area Group 5 at the Idaho National Engineering and Environmental Laboratory.

## **2. SITE HISTORY AND ENFORCEMENT ACTIVITIES**

### **2.1 History of the Idaho National Engineering and Environmental Laboratory**

The INEEL, originally established in 1949 as the National Reactor Testing Station, is a Department of Energy (DOE)-managed reservation that historically has been devoted to energy research and related activities. The National Reactor Testing Station was redesignated as the Idaho National Engineering Laboratory in 1974 to reflect the broad scope of engineering activities that were being conducted at various laboratory facilities. In 1997, the Idaho National Engineering Laboratory was redesignated as the Idaho National Engineering and Environmental Laboratory, in keeping with contemporary emphasis on environmental research.

Historically, facilities at the INEEL were dedicated to the development and testing of peaceful applications for nuclear power. Throughout the 50 years of INEEL operations, disposal practices have been implemented in compliance with state and federal regulations as well as policies established by DOE and its predecessors. Some of these practices are not acceptable by contemporary standards and have been discontinued. Contaminated structures and environmental media, such as soil and water, are the legacy of some historical disposals. Occasional accidental releases have also occurred over time. In keeping with the contemporary emphasis on environmental issues, INEEL research is now focused on environmental restoration to address these contaminated media and waste management issues, and minimize additional contamination from current and future operations. As described in the *Idaho National Engineering and Environmental Laboratory Comprehensive Facility and Land Use Plan* (DOE-ID 1996), the emphasis of work at the INEEL is moving toward managing radiological and hazardous waste, restoring the environment, developing environmental cleanup technologies, preserving national security, and developing nuclear technologies and applications.

### **2.2 History of Waste Area Group 5**

As shown in Figure 2-1, ARA and PBF are located in fairly close proximity. In addition to location, the two areas have similar operational backgrounds and sources of contamination. Therefore, ARA and PBF were consolidated into one waste area group, WAG 5, for comprehensive evaluation under the *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory* (DOE-ID 1991). A synopsis of the history for each facility is provided in the ROD (DOE-ID 2000a).

### **2.3 Idaho National Engineering and Environmental Laboratory Comprehensive Facility and Land Use Plan**

Land-use projections in the *INEEL Comprehensive Facility and Land Use Plan* (DOE-ID 1996) incorporate the assumption that the INEEL will remain under government management and control for at least the next 100 years. A mix of land uses across the INEEL is anticipated to include unrestricted industrial uses, government-controlled industrial uses, unrestricted areas, controlled areas for wildlife management and conservation, and waste management areas. No residential development will be allowed within INEEL boundaries, and no new major private developments (residential or nonresidential) on public lands are expected in areas adjacent to the INEEL site. Grazing will be allowed to continue in the buffer area. The plan includes specific land-use information about the PBF and ARA facilities. This information will be updated as needed to reflect land-use changes.

Table 3-1. (continued).

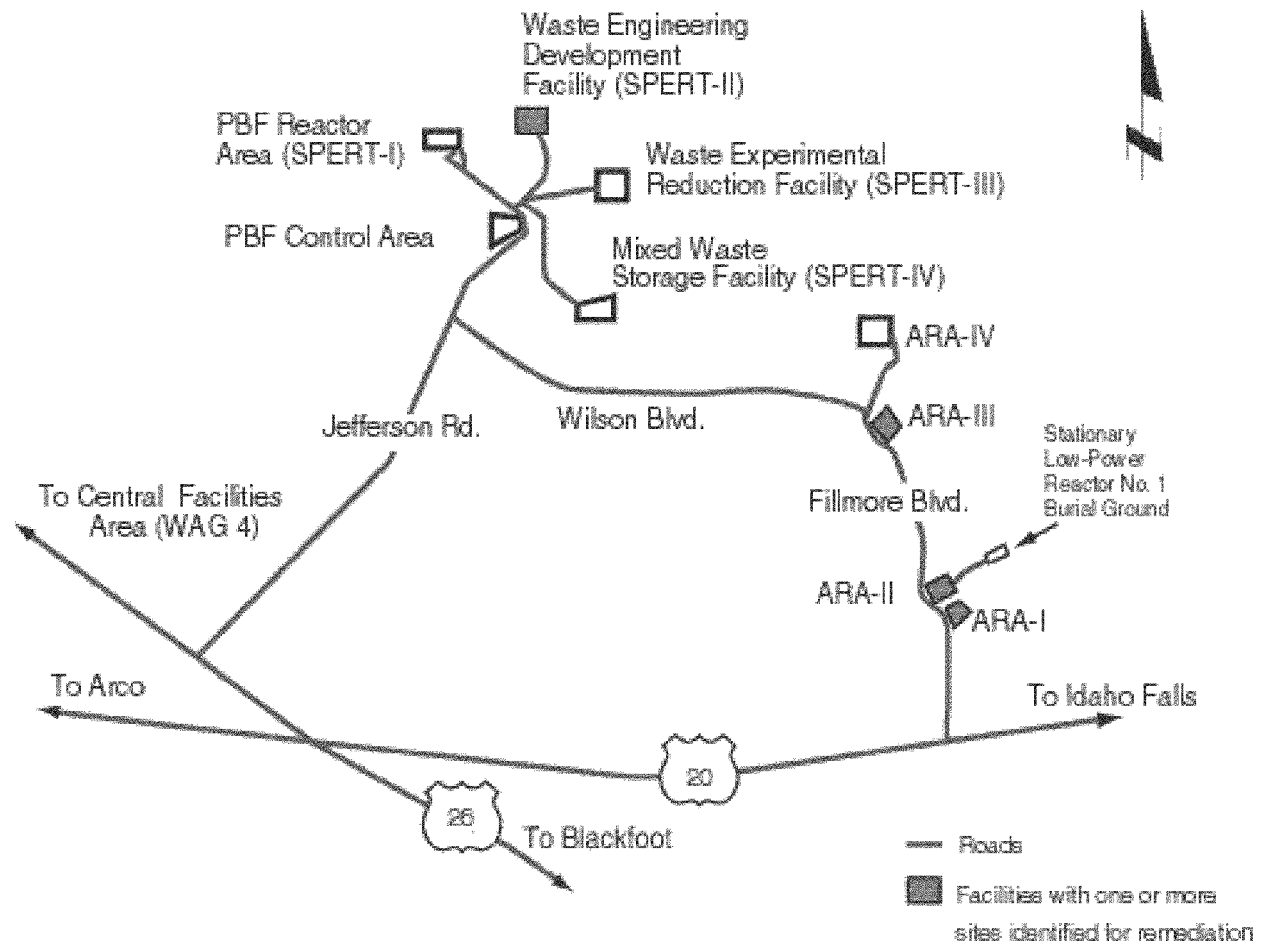


Figure 2-1. Physical configuration of Waste Area Group 5

### 3. INSTITUTIONAL CONTROLS

The 55 potential release sites at ARA and PBF were evaluated in *WasteArea Group 5, Operable Unit 5-12 Comprehensive Remedial Investigation/Feasibility Study* (Holdren et al. 1999). Seven sites were determined to pose an unacceptable risk to human health or the environment and were presented in the ROD (DOE-ID 2000a) as requiring remediation, as outlined in the *WasteArea Group 5, Operable Unit 5-12, Power Burst Facility and Auxiliary Reactor Area, Remedial Design/Remedial Action Scope of Work* (DOE-ID 2001b).

One of the seven sites, PBF-16, was to be remediated to address ecological risks only, and would not require institutional controls. Based on the results of pre-remediation sampling conducted in Fiscal Year 2000, it was determined that mercury contamination levels were actually below those reported in the ROD (DOE-ID 2000a). As discussed in the *WasteArea Group 5 Remedial Design/Remedial Action Work Plan, Phase II* (DOE-ID 2000c), the additional analytical results indicated that the actual mercury concentrations were below the remediation goal of 0.5 mg/kg. Therefore, the site is no longer considered an unacceptable risk, and no additional remediation of the site is required.

Institutional controls were identified as an additional component to the selected remedies at the remaining six sites requiring remediation. The need for institutional controls following remediation is determined based on post-remediation sampling. Nine additional sites, while not presenting a risk at levels requiring remediation, still had contamination present at levels that precluded unrestricted use. The institutional controls will be maintained until it is determined during a 5-year review that controls are no longer necessary and that site conditions have not changed significantly, with the status of each site remaining consistent with the ROD (DOE-ID 2000a). In addition to the sites identified in the ROD (DOE-ID 2000a) as requiring institutional controls, two additional sites (ARA-07 and ARA-08) have subsequently been identified following completion of the Phase I remedial activities. The need for institutional controls at these two sites is discussed in the *Remedial Action Report for WAG 5, OU 5-12 Phase I Remedial Action; Sites ARA-02, ARA-16, ARA-25, and Inactive Waste System Sites ARA-07, ARA-08, ARA-13, and ARA-21* (DOE-ID 2002), Section 7.4.

The sites at the PBF and ARA areas, which are listed in the ROD as requiring institutional controls as a component of the remedial action or long-term institutional controls, are presented in Table 3-1. The table also includes ARA-07 and ARA-08 (as discussed above) and summarizes the status of the institutional controls for each site as of June 2003. Information pertaining to the WAG-5 institutional control sites has been entered into the *INEEL Comprehensive Facility and Land Use Plan* (DOE-ID 1996). Details on site location, history, remedial action, and the institutional control at each location are presented in Appendix A.

Table 3-1. Summary of institutional control sites.

Site Code	Description	ROD Selected Remedy	Current Status
ARA-01	ARA-I chemical evaporation pond	Remedial action/ institutional controls	CERCLA sign, radiological fencing, and soil contamination area signs are installed. Entry onto site requires entry through INEEL main gate and radiological work permit (RWP).

Table 3-1. (continued).

Site Code	Description	ROD Selected Remedy	Current Status
ARA-02 <sup>a</sup>	ARA-I sanitary waste system	Remedial action/ institutional controls	Remedial action has been completed. CERCLA sign, radiological fencing, and soil contamination area signs are installed. Entry onto site requires entry through INEEL main gate and RWP.
ARA-03 <sup>b</sup>	ARA-I lead sheeting pad near ARA-627	Institutional controls	CERCLA sign, radiological fencing, and soil contamination area signs are installed. Entry onto site requires entry through INEEL main gate and RWP.
ARA-06	ARA-II SL- 1 burial ground	Institutional controls	CERCLA sign, permanent markers, chain link fencing, and soil contamination area signs are installed. Entry onto site requires entry through INEEL main gate and RWP.
ARA-07	ARA-II seepage pit to east (ARA-720A)	No action	CERCLA sign is installed. Entry onto site requires entry through INEEL main gate.
ARA-08	ARA-II seepage pit to west (ARA-720B)	No action	CERCLA sign is installed. Entry onto site requires entry through INEEL main gate and RWP.
ARA-12	ARA-III radioactive waste leach pond	Remedial action/ institutional controls	CERCLA sign, radiological fencing, and soil contamination area signs are installed. Entry onto site requires entry through INEEL main gate and RWP.
ARA-16 <sup>a</sup>	ARA-I radionuclide tank	Remedial action/ institutional controls	Remedial action has been completed. CERCLA sign, radiological roping, and soil contamination area signs are installed. Entry onto site requires entry through INEEL main gate and RWP.
ARA-23	ARA-II radiologically contaminated surface soils around ARA-I and ARA-II	Remedial action/ institutional controls	CERCLA sign, radiological fencing, and soil contamination area signs are installed. Entry onto site requires entry through INEEL main gate and RWP.
ARA-24	ARA-III windblown soil	Institutional controls	CERCLA sign is missing. No fencing is required. A permanent marker is installed. Entry onto site requires entry through INEEL main gate.

Table 3-1. (continued).

Site Code	Description	ROD Selected Remedy	Current Status
ARA-25'	ARA-I soils beneath the ARA-626 hot cells	Remedial action/institutional controls	Remedial action has been completed. CERCLA sign is present but not in place. Radiological roping and soil contamination area signs are installed. Entry onto site requires entry through INEEL main gate and RWP. A monument will be installed marking the location of subsurface contamination remaining at the site following completion of the remediation of the ARA-23 site, which encompasses ARA-25.
PBF-10	PBF reactor area evaporation pond (PBF-733)	Institutional controls	CERCLA sign and permanent marker are installed. Entry onto site requires entry through INEEL main gate and PBF facility gate.
PBF-12	PBF SPERT-I leach pond	Institutional controls	CERCLA sign is installed. A permanent marker will be installed during D&D. Entry onto site requires entry through INEEL main gate and PBF facility gate.
PBF-13	PBF reactor area rubble pit	Institutional controls	CERCLA sign and permanent marker are installed. Entry onto site requires entry through INEEL main gate and PBF facility gate.
PBF-21	PBF SPERT-III large leach pond	Institutional controls	CERCLA sign is installed. A permanent marker will be installed during D&D. Entry onto site requires entry through INEEL main gate and PBF facility gate.
PBF-22	PBF SPERT-IV leach pond (PBF-758)	Institutional controls	CERCLA sign, radiological fencing, and soil contamination area signs are installed. Entry onto site requires entry through INEEL main gate and PBF facility gate and RWP.

Table 3-1. (continued).

Site Code	Description	ROD Selected Remedy	Current Status
PBF-26	PBF SPERT-IV lake	Institutional controls	CERCLA sign is installed. Entry onto site requires entry through INEEL main gate and PBF facility gate.

a. Contaminated surface soils attributed to and will be removed as part of the ARA-23 site remediation

b. This site is located within the boundaries of the ARA-23 contaminated soils. As such, the site may be remediated as a result of the ARA-23 site remediation.

c. Contaminated soil was removed to basalt, in accordance with the ROD (DOE-ID2000a). Residual contamination remains in the basalt.

ARA = Auxiliary Reactor Area

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act

D&D = decontamination and dismantlement

INEEL = Idaho National Engineering and Environmental Laboratory

PBF = Power Burst Facility

ROD = Record of Decision

RWP = radiological work permit

SL-1 = Stationary Low-Power Reactor No. 1

SPERT = Special Power Excursion Reactor Test



## **4. WASTE AREA GROUP 5 ACTIVITIES**

This section discusses the directives of the WAG-5 ROD (DOE-ID 2000a), the status of remedial activities at WAG 5, and the current status and disposition of WAG-5 waste streams generated as a result of past and ongoing activities.

### **4.1 Waste Area Group 5 Record of Decision Directives**

Because the components of the selected remedy for WAG 5 may result in (and have resulted in) hazardous substances, pollutants, or contaminants remaining in WAG 5 that are above levels that allow for unlimited use and unrestricted exposure, the WAG-5 ROD (DOE-ID 2000a) requires a statutory review to be conducted within 5 years of initiating the remedial action, to ensure that the remedy is, or continues to be, protective of human health and the environment.

Most remediation goals are based on soil concentrations equivalent to a risk of  $1\text{E-}04$  (1 in 10,000) to a hypothetical resident 100 years in the future. Therefore, residual hazardous or radioactive contaminants may remain after remediation, precluding immediate unrestricted land use. In addition, institutional controls will apply. Five-year reviews will be conducted for remediated sites and institutional controls will remain in place until it is determined during a 5-year review that controls and reviews are no longer necessary.

As discussed above, institutional controls will be implemented to manage the residual contamination at nine additional sites in WAG 5. These sites will also be subject to 5-year reviews. Controls such as access restrictions will be maintained until it is determined during a 5-year review that controls are no longer necessary due either to the successful remediation of the site or to the natural decay of the radionuclides present that necessitated the implementation of institutional controls in the first place. The status of these sites will be examined during the 5-year reviews for WAG 5, to ensure that site conditions have not changed significantly and that the status of each site remains consistent with the WAG-5 ROD (DOE-ID 2000a). The reviews will include an assessment of maintenance requirements, such as subsidence and drainage repairs. No subsidence was noted at any of the WAG 5 institutional control sites during the 2002 inspection. Table 3-1 and Appendix A summarize the current status of controls at the 15 institutional control sites. Appendix B contains maps of each site within ARA and PBF. Appendix C contains the field inspection checklists for the WAG-5 institutional control sites.

### **4.2 Status of Remedial Activities**

The remedial action for WAG 5 has been divided into two phases. Phase I was specific to tanks and inactive waste systems located at ARA. In addition, remediation of the ARA-25 contaminated soil site was included in Phase I because of the proximity of the ARA-25 soils to the ARA-16 radionuclide tank's system components (i.e., piping and hot cell drains). Phase II is concerned with the remediation of contaminated soils located at both ARA and PBF.

The Phase I sites that have been remediated are ARA-02, ARA-16, and ARA-25 (a Phase II site remediated in Phase I). In addition, four inactive waste systems were closed as a best management practice. These inactive systems included ARA-07 (ARA-II seepage pit to the east [ARA-720A]), ARA-08 (ARA-II seepage pit to the west [ARA-720B]), ARA-13 (ARA-III sanitary sewer distribution box and septic tank [ARA-740]), and ARA-21 (ARA-IV test area septic tank and Leach Pit No. 2). The Phase I remedial activities commenced in 2000 and continued through 2001.

For ARA-02, the entire septic system was removed in accordance with the requirements of the ROD (DOE-ID 2000a). The seepage pit sludge was removed and disposed of, thus mitigating the human health risk associated with this site. Based upon comparison of the post-remediation contaminant concentrations to the remediation goals, the remediation of the ARA-02 site was determined to be successful.

For ARA-16, the waste was removed from the tank. In addition, the tank, its associated piping, and the concrete vault were removed in accordance with the requirements of the ROD (DOE-ID 2000a). In situ measurement of the basalt/soils underlying the tank and vault demonstrated that the maximum Cs-137 concentration remaining was 1.5 pCi/g, which is below the remediation goal of 23 pCi/g at the 1E-04 human health risk concentration for the residential 100-year scenario decayed through the exposure period. Some low levels of Cs-137 contamination remain in the surficial soils overlying the ARA-16 site; however, this contamination is attributed to windblown spread of contamination from ARA-23, rather than originating from the ARA-16 site. Because the remaining contaminant concentration attributed to ARA-16 is below the remediation goal, the remediation of the ARA-16 site was determined to be successful.

For ARA-25, the contaminated soils were removed in accordance with the requirements of the ROD (DOE-ID 2000a). In addition, the hot cell foundation was also removed, allowing excavation of the underlying and immediately surrounding soil to basalt. In situ measurement of the basalt layer demonstrated that the maximum Cs-137 concentration remaining was 398 pCi/g, which exceeds the remediation goal of 23 pCi/g at the 1E-04 human health risk concentrations for the residential 100-year scenario decayed through the exposure period. As with the ARA-02 site, the Cs-137 was used as a marker to calculate the concentrations of the remaining contaminants, based upon the ratio of their maximum concentrations to that of Cs-137, as obtained from Tables 13 and 14 in the ROD (DOE-ID 2000a). The concentration of Cs-137 and those derived for the other contaminants of concern (COCs) are provided in Table 4-1. Although the remaining contaminant concentrations exceed the remediation goal, Section 8.6 of the ROD (DOE-ID 2000a) stipulated that remediation goals can be satisfied by either cleaning up to the identified contaminant concentration or by removing all soil down to the basalt interface. Because the contaminated soils were removed down to the basalt interface, the remediation of the ARA-25 site was determined to be successful. However, because contamination does remain at the site, institutional controls will be required.

Table 4-1. Auxillary Reactor Area-25 contaminant concentrations.

Contaminant of Concern	Maximum Concentration Prior to Remediation	Remediation Goal	Maximum Post-Remediation Concentration
Cs-137	449 pCi/g	23 pCi/g	398 pCi/g
Ra-226	29.7 pCi/g	1.2 or 2.1 pCi/g <sup>a</sup>	26.3 pCi/g
Arsenic	40.6 mg/kg	5.8 mg/kg	36.0 mg/kg
Lead	1,430 mg/kg	400 mg/kg	1,266 mg/kg
Copper	227 mg/kg	220 mg/kg	201 mg/kg

a. A goal of 2.1 pCi/g will be used for comparison of sample results that may include interference from U-235; otherwise, a goal of 1.2 pCi/g will be used. Regardless of which remediation goal concentration is used for comparison, the post-remediation concentration clearly exceeds either one.

#### 4.2.1 Inactive Sites

The following inactive sites were closed as a best management practice:

- ARA-07, ARA-II Seepage Pit to the east
- ARA-08, ARA-II Seepage Pit to the west
- ARA-13, ARA-III Sanitary Sewer Leach Field and Septic Tank
- ARA-21, ARA-IV Test Area Septic Tank and Leach Pit No. 2.

In accordance with the ROD (DOE-ID 2000a), institutional controls are not required at any of the four sites that were closed during the Phase I activities (i.e., ARA-07, ARA-08, ARA-13, and ARA-21). Based upon results of the closure activities and information presented in the *Waste Area Group 5, Operable Unit 5-12 Comprehensive Remedial Investigation/Feasibility Study* (Holdren et al. 1999), no evidence exists that would indicate institutional controls at any of these sites are warranted.

Based upon the analytical data obtained for ARA-13 and ARA-21 during Phase I, this determination holds true for these sites. However, based upon historical analytical data for the ARA-07 and ARA-08 sites, residual Cs-137 contamination exists that warrants institutional controls being established at these two sites. The institutional controls will consist of visible access restriction (i.e., CERCLA signs) and prevention of unauthorized access (i.e., the INEEL security gate). The requirement for institutional controls at these two sites will be reviewed every 5 years.



## 5. DISPOSITION STATUS OF WASTE AREA GROUP 5 REMEDIATION WASTES

Various wastes resulted from the remediation of the Phase I sites. Many of the waste streams have already been disposed of at various facilities such as the Radioactive Waste Management Complex (RWMC), the Central Facilities Area (CFA) landfill, and Envirocare for solid wastes. Some solid wastes have been grouted and shipped to the Staging and Storage Annex (SSA) for eventual disposal in the ICDF. The liquid wastes generated have been disposed of at either the CFA Sewage Treatment Plant or stabilized and shipped to the SSA for eventual disposal in the ICDF. Still, other wastes are in storage at the CERCLA Waste Storage Unit (located at the ARA-I facility) awaiting shipment for final treatment and disposal. Table 5-1 summarizes the wastes generated during the Phase I remediation activities, including current disposal status. This table will be updated annually with the submittal of the updated Institutional Controls Status Report, and will reflect the disposition of the various waste streams at the time. Table 5-1 also includes the Toxic Substances Control Act (TSCA)-regulated sludge that originated from the ARA-02 Septic Tank 2 and is being stored until an approved off-Site treatment and disposal facility is available to receive it. Note: Activities are currently underway for the repackaging of the ARA-02 sludge in preparation for shipment to the TSCA Incinerator (located in Oak Ridge, TN) for treatment and disposal.

Table 5-1. Waste Area Group 5 waste summary.

Waste Stream	Volume	Disposal Site	Disposal Status
ARA-02: ARA-I Sanitary Waste System			
Seepage pit sludge	Seven 208-L (55-gal) drums (3,166 lb)	Envirocare	Disposed of 12/2000.
Septic Tank No. 2 sludge	Nine 208-L (55-gal) drums (3,870 lb)	Permafix	Stored at CERCLA storage unit at ARA-I. Shipment is planned for 9/2003.
Debris	Thirteen 1.2 x 1.2 x 2.4-m (4 x 4 x 8-ft) metal boxes (77,165 lb)	Envirocare	Disposed of 12/2000.
Debris	Nine 0.6 x 1.2 x 2.4-m (2 x 4 x 8-ft) wood boxes (32,530 lb)	Envirocare	Disposed of 12/2000.
Debris	One 1.2 x 1.2 x 2.4-m (4 x 4 x 8-ft) wood box (4,000 lb)	Envirocare	Stored at CERCLA storage area at INTEC. Shipment is planned for 6/2004.
Debris	Three 1.2 x 1.2 x 2.4-m (4 x 4 x 8-ft) TX4 boxes (17,860 lb)	Envirocare	Disposed of 12/2000
Debris	Three 208-L (55-gal) drums (636 lb)	Envirocare	Disposed of 12/2000.
Debris	Three 18 yd <sup>3</sup> roll-offs (93,860 lb)	Envirocare	Disposed of 12/2000

Table 5-1. (continued).

Waste Stream	Volume	Disposal Site	Disposal Status
Debris	One 25 yd <sup>3</sup> roll-off (29,130 lb)	Envirocare	Disposed of 12/2000
Debris	One 1.2 x 1.2 x 2.4-m (4 x 4 x 8-ft) B-25 metal box (410 lb)	Envirocare	Disposed of 12/2000
Debris	Eight 208-L (55-gal) drums (1,674 lb)	Envirocare	Stored at CERCLA storage area at INTEC. Shipment is planned for 6/2004.
Lead rings	Four 19-L (5-gal) drums (314 lb)	Envirocare	Stored at CERCLA storage area at INTEC. Shipment is planned for 6/2004.
Sample returns	Three 208-L (55-gal) drums and three 19-L (5-gal) pails (133 lb)	To be determined	Stored at Mixed Waste Storage Facility at the Waste Reduction Operations Complex.
ARA-07: ARA-II Seepage Pit to east (ARA-720A)			
Debris	4.3 m <sup>3</sup> (5.6 yd <sup>3</sup> )	CFA landfill	Disposed of 07/2000.
ARA-08: ARA-II Seepage Pit to west (ARA-720B)			
Debris	2.3 m <sup>3</sup> (3.0 yd <sup>3</sup> )	CFA landfill	Disposed of 07/2000.
ARA-13: ARA-III ARA-III Sanitary Sewer Leach Field and Septic Tank (ARA-740)			
Septic tank sludge	One soft-sided sack (20,000 lb)	RWMC	Disposed of 06/2001.
Distribution box sludge	One 208-L (55-gal) drum (350 lb)	To be determined	Stored at CERCLA storage area at INTEC.
Water	21,198 L (5,600 gal)	CFA Sewage Treatment Plant	Disposed of 05/2001
Debris	One 12-yd <sup>3</sup> dump truck	CFA landfill	Disposed of 05/2001.
Debris	Two 208-L (55-gal) drums (205 lb)	RWMC	Disposed of 05/2002.
ARA-16: ARA-I Radionuclide Tank			
Piping	Five 0.6 x 1.2 x 1.8-m (2 x 4 x 6-ft) metal boxes, grouted	Stored at SSA for disposal at ICDF	Shipped to SSA 08/2001 through 09/2001.
Tank	1.4 x 1.4 x 4.0-m (4.5 x 4.5 x 13-ft) concrete monolith	Stored at SSA for disposal at ICDF	Shipped to SSA 04/2002.

Table 5-1. (continued).

Waste Stream	Volume	Disposal Site	Disposal Status
Sludge	High-integrity container with 303 L (80 gal) of liquid and sludge	To be determined	Stored at CERCLA storage unit at ARA-I.
Stabilized liquid	Nineteen 208-L (55-gal) drums	Stored at SSA for disposal at ICDF	Shipped to SSA on 09/2001.
Carbon filter	One 20 x 60-in. unit (6 ft <sup>3</sup> of carbon)	Permafix	Stored at CERCLA storage unit at ARA-I.
Miscellaneous debris	Nine 0.6 x 1.2 x 1.8-m (2 x 4 x 6-ft) metal boxes, grouted	Storage at SSA for disposal at ICDF	Shipped to SSA on 09/2001.
Vault and gravel	Two soft-sided sacks (20,000 lb each)	RWMC	Disposed of 10/2001.
ARA-21: ARA-IV Test Area Septic Tank and Leach Pit No. 2			
Water	3,785 L (1,000 gal)	CFA Sewage Treatment Plant	Disposed of 10/2000.
ARA-25: ARA-I Soils beneath the ARA-626 Hot Cells			
Debris	Thirty-nine soft-sided sacks (20,000 lb each)	RWMC	Disposed of 08/2001 through 09/2001.
ARA = Auxiliary Reactor Area CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act CFA = Central Facilities Area ICDF = INEEL CERCLA Disposal Facility WTEC = Idaho Nuclear Technology and Engineering Center RWMC = Radioactive Waste Management Complex SSA = Storage and Staging h e x			





## 6. REFERENCES

- 42 USC 9601 et seq., 1980, The Public Health and Welfare,” Chapter 103, “Comprehensive Environmental Response, Compensation, and Liability Act,” Subchapter I, “Hazardous Substances Releases, Liability, Compensation,” Section 9601, “Definitions,” *United States Code*, December 1980.
- DOE-ID, 1991, *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory*, U.S. Department of Energy Idaho Operations Office; U.S. Environmental Protection Agency, Region 10; Idaho Department of Health and Welfare, December 1991.
- DOE-ID, 1996, *Idaho National Engineering and Environmental Laboratory Comprehensive Facility and Land Use Plan*, DOE/ID-10514, Revision 0, U.S. Department of Energy Idaho Operations Office, March 1996.
- DOE-ID, 2000a, *Record of Decision for Power Burst Facility and Auxiliary Reactor Area*, DOE/ID-10700, Revision 0, U.S. Department of Energy Idaho Operations Office, U.S.-Environmental Protection Agency, Region 10; Idaho Department of Health and Welfare, January 2000.
- DOE-ID, 2000b, *Operations and Maintenance Plan for Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12*, DOE/ID-10805, Revision 0, U.S. Department of Energy Idaho Operations Office. December 2000.
- DOE-ID, 2000c, *Waste Area Group 5 Remedial Design/Remedial Action Work Plan, Phase II*, DOE/ID-10798, Revision 0, U.S. Department of Energy Idaho Operations Office, December 2000.
- DOE-ID, 2001a, *Waste Area Group 5 Remedial Design/Remedial Action Work Plan, Phase I*, DOE/ID-10761, Revision 1, U.S. Department of Energy Idaho Operations Office, June 2001.
- DOE-ID, 2001b, *Waste Area Group 5, Operable Unit 5-12, Power Burst Facility and Auxiliary Reactor Area, Remedial Design/Remedial Action Scope of Work*, DOE/ID-10722, Revision 0, U.S. Department of Energy Idaho Operations Office, April 2000.
- DOE-ID, 2002, *Remedial Action Report for WAG 5, OU 5-12 Phase I Remedial Action; Sites ARA-02, ARA-16, ARA-25, and Inactive Waste System Sites ARA-07, ARA-08, ARA-13, ARA-21*, DOE/ID-10954, Revision 0, U.S. Department of Energy Idaho Operations Office, January 2002.
- Holdren, K. J., C. M. Hiaring, D. E. Burns, N. L. Hampton, B. J. Broomfield, E. R. Neher, R. L. Van Horn, I. E., Stepan, R. P. Wells, R. L. Chambers, L. Schmeising, and R. Henry, 1999, *Waste Area Group 5, Operable Unit 5-12 Comprehensive Remedial Investigation/Feasibility Study*, DOE/ID-10607, Revision 0, U.S. Department of Energy Idaho Operations Office, January 1999.
- IDAPA 58.01.03.007, 2003, “Septic Tanks Design and Construction Standards,” Idaho Administrative Procedures Act, Idaho Department of Environmental Quality, May 2003.
- MCP-3448, 2003, “Reporting Potentially Hazardous Sites,” Revision 4, Environmental Protection and Compliance, April 2003.
- STD-101, 2003, “Integrated Work Control Process,” Revision 15, Operations, July 2003

